WHAT IS CLAIMED IS:

1. An isolated polynucleotide comprising a polynucleotide selected from the group consisting of:

(a) a polynucleotide having the nucleotide sequence of SEQ ID NO: 1;

(b) a polynucleotide having the stem cell maintenance factor protein coding nucleotide sequence of a polynucleotide of (a); and

(c) a polynucleotide having the mature stem cell maintenance factor protein coding nucleotide sequence of a polynucleotide of (a).

2. An isolated polynucleotide encoding a polypeptide with stem cell maintenance factor activity, comprising a polynucleotide that encodes the amino acid sequence of SEQ ID NO: 2 or the mature protein sequence thereof.

3. An isolated polynucleotide encoding a polypeptide with stem cell maintenance factor activity that hybridizes under stringent conditions to the complement of a polynucleotide of any one of claims 1 or 2.

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4. An isolated polynucleotide encoding a polypeptide with stem cell maintenance factor activity, said polynucleotide having greater than about 90% sequence identity with the polynucleotide of claim 1 or 2.

5. The polynucleotide of claim 1 or 2 which is a DNA.

6. An isolated polynucleotide which comprises a complement of the polynucleotide of claim 1.

7. An expression vector comprising the DNA of claim 5.

8. A host cell genetically engineered to express the DNA of claim 5.

9. A host cell genetically engineered to contain the DNA of claim 5 in operative association with a regulatory sequence that controls expression of the DNA in the host cell.

10. An isolated polypeptide with stem cell maintenance factor activity comprising the amino acid sequence of SEQ ID NO: 2 or the mature protein sequence thereof.

11. An isolated polypeptide with stem cell maintenance factor activity selected from the group consisting of:

a) a polypeptide having greater than about 90% sequence identity with the polypeptide of claim 10, and

b) a polypeptide encoded by the polynucleotide of claim 3.

12. A composition comprising the polypeptide of claim 10 or 11 and a carrier.

13. An antibody directed against the polypeptide of claim 10 or 11.

14. A method for detecting a polynucleotide of claim 3 in a sample, comprising the steps of:

a) contacting the sample with a compound that binds to and forms a complex with the polynucleotide for a period sufficient to form the complex; and

b) detecting the complex, so that if a complex is detected, a polynucleotide of claim 3 is detected.

15. A method for detecting a polynucleotide of claim 3 in a sample, comprising the steps of:

a) contacting the sample under stringent hybridization conditions with nucleic acid primers that anneal to a polynucleotide of claim 3 under such conditions; and

b) amplifying the polynucleotides of claim 3 so that if a polynucleotide is amplified, a polynucleotide of claim 3 is detected.

16. The method of claim 15, wherein the polynucleotide is an RNA molecule that encodes a polypeptide of claim 11, and the method further comprises reverse transcribing an annealed RNA molecule into a cDNA polynucleotide.

17. A method for detecting a polypeptide of claim 11 in a sample, comprising:

a) contacting the sample with a compound that binds to and forms a complex with the polypeptide for a period sufficient to form the complex; and

b) detecting the complex, so that if a complex is detected, a polypeptide of claim 11 is detected.

18. A method for identifying a compound that binds to a polypeptide of claim 11, comprising:

a) contacting a compound with a polypeptide of claim 11 for a time sufficient to form a polypeptide/compound complex; and

b) detecting the complex, so that if a polypeptide/compound complex is detected, a compound that binds to a polypeptide of claim 11 is identified.

19. A method for identifying a compound that binds to a polypeptide of claim 11, comprising:

a) contacting a compound with a polypeptide of claim 11, in a cell, for a time sufficient to form a polypeptide/compound complex, wherein the complex drives expression of a reporter gene sequence in the cell; and

b) detecting the complex by detecting reporter gene sequence expression, so that if a polypeptide/compound complex is detected, a compound that binds to a polypeptide of claim 11 is identified.

20. A method of producing the polypeptide of claim 11, comprising,

a) culturing the host cell of claim 8 for a period of time sufficient to express the polypeptide; and

b) isolating the polypeptide from the cell or culture media in which the cell is grown.

21. A kit comprising the polypeptide of claim 11.

22. Cell culture media comprising the polypeptide of claim 11.